



CITY OF CAMBRIDGE RETIREMENT SYSTEM

Financial Statements and Required Supplementary Information

December 31, 2019 and 2018

(With Independent Auditors' Report Thereon)

CITY OF CAMBRIDGE RETIREMENT SYSTEM
Financial Statements and Required Supplementary Information
December 31, 2019 and 2018

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KPMG LLP
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Independent Auditors' Report

City of Cambridge
Retirement System Board:

Report on the Financial Statements

We have audited the accompanying financial statements of the City of Cambridge Retirement System (the System) as of and for the years ended December 31, 2019 and 2018, and the related notes to the financial statements, which collectively comprise the System's basic financial statements for the years then ended as listed in the accompanying table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the System as of December 31, 2019 and 2018, and the changes in fiduciary net position for the years then ended in accordance with U.S. generally accepted accounting principles.



Other Matter

Required Supplementary Information

U.S. generally accepted accounting principles require that the Management's Discussion and Analysis and the required supplementary information as listed in the accompanying table of contents (collectively referred to as RSI) be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the RSI in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated August 28, 2020 on our consideration of the System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the System's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control over financial reporting and compliance.

KPMG LLP

Boston, Massachusetts
August 28, 2020

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Management's Discussion and Analysis

December 31, 2019 and 2018

(Unaudited)

This section presents Management's Discussion and Analysis (MD&A) of the City of Cambridge Retirement System's (the System or the Plan) financial activity and performance as of and for the years ended December 31, 2019 and 2018. The MD&A is unaudited and is intended to serve as an introduction to the Plan's basic financial statements, as well as to offer readers of the Plan's financial statements a narrative view and analysis of System's financial activities.

Financial Highlights

The fiduciary net position of the Plan as of December 31, 2019 totaled \$1.451 billion, a \$182.0 million, or 14.35% increase, due to positive returns in several asset classes. Fiduciary net position is the residual of the Plan's assets in excess of the Plan's liabilities as of the date of the Statements of Fiduciary Net Position. The Plan's assets are held in trust to meet future benefit payments.

Total Plan "additions" of \$274.4 million, comprised of \$73.3 million in contributions, and \$201.1 million in investment gains, were reported for the year ended December 31, 2019. In comparison, the Plan reported total additions of \$21.6 million and \$257.2 million for the years ended December 31, 2018 and 2017, respectively. The increase in 2019 is due to investment gains in several asset classes, and the decrease in 2018 from 2017 is due to investment losses in several asset classes.

For the plan year ended December 31, 2019, total Plan deductions were \$92.4 million, an increase of \$3.9 million, or 4.41% over the last year, and are comprised of \$85.6 million in benefit payments, \$5.6 million in transfers and withdrawals and \$1.2 million in administrative expenses. This \$3.9 million increase is due to new retirements. This is as compared to total deductions of \$88.5 million and \$83.7 million for the years ended December 31, 2018, and 2017, respectively.

The Plan's fiduciary net position as a percentage of the total pension liability was 85.8%.

Overview of the Financial Statements

The basic financial statements consist of the: (1) Statements of Fiduciary Net Position; (2) Statements of Changes in Fiduciary Net Position; and (3) Notes to the Financial Statements; and (4) Required Supplementary Information.

The Statements of Fiduciary Net Position report the Plan's assets, liabilities, and net position restricted for pensions at the end of the fiscal year calculated using the following formula: $\text{Assets} - \text{Liabilities} = \text{Net position restricted for pensions}$. The Statements of Fiduciary Net Position report the financial position of the Plan at a given point in time, in this case, December 31. Over time, the increase or decrease in fiduciary net position serves as a useful indicator of the Plan's financial health.

The Statements of Changes in Fiduciary Net Position report additions to and deductions from the Plan during the fiscal year. The formula here is: $\text{Additions} - \text{Deductions} = \text{Net Increase (Decrease) in Plan Fiduciary Net Position}$. The Statements of Changes in Fiduciary Net Position report activity occurring over a specific period of time, in this case, the year beginning January 1 and ending December 31.

The Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the Plan's financial statements.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Management's Discussion and Analysis

December 31, 2019 and 2018

(Unaudited)

This report also includes Required Supplementary Information following the Notes to the Financial Statements that consists of the schedules of changes in net pension liability and related ratios, investment returns, and contributions and notes to schedule of contributions.

These statements and schedules are prepared in conformity with U.S. generally accepted accounting principles, including the accounting and financial reporting requirements found in GASB Statement No. 67.

Financial Analysis

Total assets as of December 31, 2019 and 2018 were \$1.5 billion and \$1.3 billion, respectively, and were comprised of cash and cash equivalents; investments; cash collateral on securities lending, accrued interest and accrued dividends receivables; and contributions due from Plan members, the Plan sponsor and other systems. Total assets increased by \$155.7 million or 11.9% from \$1.3 billion as of December 31, 2018, due to investment gains in several asset classes. Total assets decreased by \$80.5 million or 5.8% between 2017 and 2018 due to investment losses in several asset classes.

Total liabilities as of December 31, 2019 were approximately \$11.1 million and total liabilities as of December 31, 2018 were approximately \$37.4 million. Total liabilities for 2019 and 2018 were primarily comprised of payables for investment management fees, refunds to members, and cash collateral on securities lending. Total liabilities decreased by \$13.7 million or 26.8% between 2017 and 2018 due to a decrease in cash collateral on securities lending.

Total fiduciary net position held in trust for pension benefits totaled \$1.451 billion at December 31, 2019 which represents an increase of \$182.0 million or 14.4% over 2018. Fiduciary net position decreased by \$66.9 million or 5.0% between 2017 and 2018. The increase in 2019 is due to investment gains in several asset classes.

Condensed financial information

	<u>2019</u>	<u>2018</u>	<u>Total \$ change</u>	<u>Total % change</u>
Assets:				
Cash and cash equivalents	\$ 9,234,999	9,793,854	(558,855)	(5.71)%
Receivables and other assets	914,918	1,004,148	(89,230)	(8.89)
Investments	1,441,437,559	1,260,028,861	181,408,698	14.40
Cash collateral on securities lending	<u>10,226,733</u>	<u>35,255,585</u>	<u>(25,028,852)</u>	<u>(70.99)</u>
Total assets	<u>1,461,814,209</u>	<u>1,306,082,448</u>	<u>155,731,761</u>	<u>11.92</u>

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Management's Discussion and Analysis

December 31, 2019 and 2018

(Unaudited)

Condensed financial information

	<u>2019</u>	<u>2018</u>	<u>Total \$ change</u>	<u>Total % change</u>
Liabilities:				
Payables	\$ 848,016	2,107,713	(1,259,697)	(59.77)
Cash collateral on securities lending	<u>10,226,733</u>	<u>35,255,585</u>	<u>(25,028,852)</u>	<u>(70.99)</u>
Total liabilities	<u>11,074,749</u>	<u>37,363,298</u>	<u>(26,288,549)</u>	<u>(70.36)</u>
Fiduciary net position	\$ <u><u>1,450,739,460</u></u>	<u><u>1,268,719,150</u></u>	<u><u>182,020,310</u></u>	<u><u>14.35 %</u></u>

Condensed financial information

	<u>2018</u>	<u>2017</u>	<u>Total \$ change</u>	<u>Total % change</u>
Assets:				
Cash and cash equivalents	\$ 9,793,854	8,264,315	1,529,539	18.51 %
Receivables and other assets	1,004,148	1,905,840	(901,692)	(47.31)%
Investments	1,260,028,861	1,328,403,797	(68,374,936)	(5.15)%
Cash collateral on securities lending	<u>35,255,585</u>	<u>48,028,012</u>	<u>(12,772,427)</u>	<u>(26.59)%</u>
Total assets	<u>1,306,082,448</u>	<u>1,386,601,964</u>	<u>(80,519,516)</u>	<u>(5.81)%</u>
Liabilities:				
Payables	2,107,713	2,997,901	(890,188)	(29.69)%
Cash collateral on securities lending	<u>35,255,585</u>	<u>48,028,012</u>	<u>(12,772,427)</u>	<u>(26.59)%</u>
Total liabilities	<u>37,363,298</u>	<u>51,025,913</u>	<u>(13,662,615)</u>	<u>(26.78)%</u>
Fiduciary net position	\$ <u><u>1,268,719,150</u></u>	<u><u>1,335,576,051</u></u>	<u><u>(66,856,901)</u></u>	<u><u>(5.01)%</u></u>

Revenues – Additions to Plan Fiduciary Net Position

Additions to the System's Fiduciary net position include plan member and plan sponsor contributions, transfers from other retirement systems and investment income. Contributions, net transfers and net investment income for plan year 2019 totaled approximately \$274.4 million as compared to additions of approximately \$21.6 million in 2018.

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Management's Discussion and Analysis

December 31, 2019 and 2018

(Unaudited)

In 2019, member contributions increased by approximately \$1.1 million or 4.8% due to the addition of new employees and the accrual of outstanding prior service buybacks. In 2018, member contributions increased by approximately \$583 thousand or 2.6% due to the addition of new employees and the accrual of outstanding prior service buybacks.

Plan sponsor contributions of \$45.7 million in 2019 increased by \$2.5 million or 5.8%, compared to an increase of \$2.3 million or 5.8% in 2018. The increase in 2019 and 2018 is due to an increase in the actuarial determined contributions (ADC) as determined by the Plan's actuary.

Net investment income for the year ending December 31, 2019 was \$201.1 million representing a \$249.3 million or 517.1% increase from 2018. The increase in net investment income in 2019 is the result of investment gains in several asset classes. Net investment income for the year ending December 31, 2018 was a loss of \$48.2 million representing a \$238.5 million or 125.3% decrease from 2017.

Condensed financial information

Additions	2019	2018	Total \$ change	Total % change
Plan member contributions	\$ 23,809,697	22,730,249	1,079,448	4.75 %
Plan sponsor contribution	45,681,166	43,173,090	2,508,076	5.81
Transfers	3,796,690	3,906,001	(109,311)	(2.80)
Net investment income (loss)	201,086,610	(48,209,324)	249,295,934	(517.11)
Total additions	<u>\$ 274,374,163</u>	<u>21,600,016</u>	<u>252,774,147</u>	<u>1,170.25 %</u>

Condensed financial information

Additions	2018	2017	Total \$ change	Total % change
Plan member contributions	\$ 22,730,249	22,146,929	583,320	2.63 %
Plan sponsor contribution	43,173,090	40,831,840	2,341,250	5.73
Transfers	3,906,001	3,872,145	33,856	0.87
Net investment income (loss)	(48,209,324)	190,300,828	(238,510,152)	(125.33)
Total additions	<u>\$ 21,600,016</u>	<u>257,151,742</u>	<u>(235,551,726)</u>	<u>(91.60)%</u>

Expenses – Deductions from Plan Fiduciary Net Position

Deductions to the Plan include the payment of pension benefits to members and beneficiaries, refunds of contributions to inactive members, transfers of member contributions to other Massachusetts public retirement plans and the cost of administration. For plan year 2019, the total deductions were \$92.4 million, an increase of \$3.9 million or 4.4% over 2018. For plan year 2018, the total deductions were \$88.5 million, an increase of \$4.8 million or 5.7% over 2017.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Management's Discussion and Analysis

December 31, 2019 and 2018

(Unaudited)

Retirement benefit payments totaled \$85.6 million, an increase of approximately \$4.9 million or 6.1%. In 2018 retirement benefit payments totaled \$80.6 million, an increase of approximately \$3.7 million or 4.7% from the previous year. The increases in 2019 and 2018 are due to new retirements and pension increases also known as cost-of-living adjustments in those respective years.

For plan year 2019, refunds of contributions totaled approximately \$1.9 million, a decrease of approximately \$864 thousand or 30.1% from 2018. For plan year 2018, refunds of contributions totaled approximately \$2.8 million, an increase of approximately \$672 thousand or 31.6% from 2017. The decrease in 2019 is due to a decrease in inactive members requesting withdrawals for their contributions from the Plan. The increase in 2018 is due to an increase in inactive members requesting withdrawals for their contributions from the Plan. Transfers to other Massachusetts public retirement systems totaled approximately \$3.6 million, a decrease of approximately \$138 thousand or 3.7% from 2018. This is compared to a \$310 thousand or 8.9% increase from 2017 to 2018. Year to year changes in transfer rates can be attributed to variations in public sector workforce movement between Cambridge and other government employers.

In 2019, administrative expenses totaled approximately \$1.2 million, a decrease of approximately \$32 thousand or 2.6%, and in 2018, administrative expenses totaled approximately \$1.3 million, an increase of approximately \$126 thousand or 11.1%. The decrease in administrative expenses for 2019 is attributable to miscellaneous expenses. The increase in administrative expenses for 2018 is attributable to personnel and miscellaneous expenses.

Condensed financial information

Deductions	2019	2018	Total \$ change	Total % change
Retirement benefits	\$ 85,555,285	80,623,068	4,932,217	6.12 %
Refunds of contributions	1,934,722	2,799,045	(864,323)	(30.88)
Other systems	3,642,559	3,781,045	(138,486)	(3.66)
Administrative expenses	1,221,287	1,253,759	(32,472)	(2.59)
Total deductions	<u>\$ 92,353,853</u>	<u>88,456,917</u>	<u>3,896,936</u>	<u>4.41 %</u>

Condensed financial information

Deductions	2018	2017	Total \$ change	Total % change
Retirement benefits	\$ 80,623,068	76,970,845	3,652,223	4.74 %
Refunds of contributions	2,799,045	2,126,598	672,447	31.62
Other systems	3,781,045	3,470,774	310,271	8.94
Administrative expenses	1,253,759	1,127,717	126,042	11.18
Total deductions	<u>\$ 88,456,917</u>	<u>83,695,934</u>	<u>4,760,983</u>	<u>5.69 %</u>

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Management's Discussion and Analysis

December 31, 2019 and 2018

(Unaudited)

Change in Plan Fiduciary Net Position

Change in fiduciary net position for the year ended December 31, 2019 was \$182.0 million, which represents an increase of \$248.9 million or 372.3% from the previous year. This increase is primarily the result of investment gains. Change in fiduciary net position for the year ended December 31, 2018 was (\$66.9) million, which represents a decrease of \$240.3 million or 138.5% from the previous year. This decrease is primarily the result of investment losses.

Condensed financial information

Changes in System fiduciary net position	2019	2018	Total \$ change	Total % change
Total additions	\$ 274,374,163	21,600,016	252,774,147	1,170.25 %
Total deductions	92,353,853	88,456,917	3,896,936	4.41
Change in plan fiduciary net position	\$ <u>182,020,310</u>	<u>(66,856,901)</u>	<u>248,877,211</u>	<u>372.25 %</u>

Condensed financial information

Changes in System fiduciary net position	2018	2017	Total \$ change	Total % change
Total additions	\$ 21,600,016	257,151,742	(235,551,726)	(91.60)%
Total deductions	88,456,917	83,695,934	4,760,983	5.69
Change in plan fiduciary net position	\$ <u>(66,856,901)</u>	<u>173,455,808</u>	<u>(240,312,709)</u>	<u>(138.54)%</u>

Overall Financial Position of System

Due to investment gains in several asset classes the Plan has experienced an increase in its investment portfolio for the year ending December 31, 2019. Management believes the Plan remains well funded and able to meet its obligations. However, management acknowledges that the investment losses from prior years, will result in increased employer contributions going forward. When plan net position declines, the Plan sponsor is statutorily obligated to offset the losses as part of its annual assessment.

Requests for Information

This financial report is designed to provide an overview of System's finances. Questions concerning any of the information provided in this report should be addressed to City of Cambridge Retirement System, 100 CambridgePark Drive, Suite 101, Cambridge, MA 02140.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Statements of Fiduciary Net Position

December 31, 2019 and 2018

	<u>2019</u>	<u>2018</u>
Assets:		
Cash and cash equivalents	\$ 9,234,999	9,793,854
Dividend and interest receivable	458,315	452,539
Other assets	456,603	551,609
Investments, at fair value:		
Fixed income securities	58,824,164	58,384,067
Equities	20,534,791	120,230,775
Pooled investments:		
Fixed income	127,463,138	134,281,690
Real estate	212,645,918	199,379,922
Domestic equities	550,472,826	329,735,952
International equities	203,466,808	166,056,092
International fixed income	66,119,549	62,561,122
Alternative	201,910,365	189,399,241
Total investments	<u>1,441,437,559</u>	<u>1,260,028,861</u>
Cash collateral on securities lending	<u>10,226,733</u>	<u>35,255,585</u>
Total assets	<u><u>1,461,814,209</u></u>	<u><u>1,306,082,448</u></u>
Liabilities:		
Accrued liabilities	848,016	836,110
Due to brokers for securities purchased	—	1,271,603
Cash collateral on securities lending	<u>10,226,733</u>	<u>35,255,585</u>
Total liabilities	<u>11,074,749</u>	<u>37,363,298</u>
Net position restricted for pensions	<u><u>\$ 1,450,739,460</u></u>	<u><u>1,268,719,150</u></u>

See accompanying notes to financial statements.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Statements of Changes in Fiduciary Net Position

Fiscal Years ended December 31, 2019 and 2018

	2019	2018
Additions:		
Contributions:		
Employers	\$ 42,708,371	40,323,505
Nonemployer – City	2,972,795	2,849,585
Plan members	23,809,697	22,730,249
Other systems	3,355,649	3,207,371
Commonwealth of Massachusetts	441,041	698,630
Total contributions	<u>73,287,553</u>	<u>69,809,340</u>
Investment income (loss):		
Interest and dividends	28,133,592	24,259,981
Securities lending income	881,685	1,102,082
Net appreciation (depreciation) in fair value of investments	182,540,440	(63,481,786)
Less:		
Management fees	(9,663,001)	(9,120,314)
Borrower rebates and fees under securities lending program	<u>(806,106)</u>	<u>(969,287)</u>
Net investment income (loss)	<u>201,086,610</u>	<u>(48,209,324)</u>
Total additions	<u>274,374,163</u>	<u>21,600,016</u>
Deductions:		
Benefits	85,555,285	80,623,068
Refunds of contributions	1,934,722	2,799,045
Other systems	3,642,559	3,781,045
Administrative expenses	<u>1,221,287</u>	<u>1,253,759</u>
Total deductions	<u>92,353,853</u>	<u>88,456,917</u>
Change in net position	182,020,310	(66,856,901)
Net position, beginning of year	<u>1,268,719,150</u>	<u>1,335,576,051</u>
Net position, end of year	<u>\$ 1,450,739,460</u>	<u>1,268,719,150</u>

See accompanying notes to financial statements.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2019 and 2018

(1) Plan Description

The City of Cambridge Retirement System (the System or the Plan) is a cost-sharing, multiple-employer defined benefit pension plan administered by a Retirement Board comprised of five members: the City Auditor who serves as ex officio; two individuals elected by participants in the System; a fourth member appointed by the City Manager and a fifth member chosen by the other members of the Retirement Board. As of December 31, 2019, the System provides pension benefits to the retired employees of four employers: the City of Cambridge, Cambridge Housing Authority, Cambridge Redevelopment Authority and Cambridge Health Alliance.

The System is a member of the Massachusetts Contributory System, which is governed by Chapter 32 of the Massachusetts General Laws (MGL).

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government. It is the general category of public employees. Group 2 is a limited category for specified hazardous occupations. Group 3 is for State Police only. Group 4 is mainly police and firefighters.

For employees hired prior to April 2, 2012, the annual amount of the retirement allowance is based on the member's final three year average salary multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage based on the age of the member at retirement.

A member's final three year average salary is defined as the greater of the highest consecutive three year average annual rate of regular compensation and the average annual rate of regular compensation received during the last three years of creditable service prior to retirement.

For employees hired on April 2, 2012 or later, the annual amount of the retirement allowance is based on the member's final five year average salary multiplied by the number of years and full months of creditable service at the retirement and multiplied by a percentage based on the age and years of creditable service of the member at retirement.

A member's final five-year average salary is defined as the greater of the highest consecutive five-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last five years of creditable service prior to retirement.

For employees who became members after January 1, 2011, regular compensation is limited to 64% of the federal limit found in 26 U.S.C. 401(a) (17). In addition, regular compensation for members who retire after April 2, 2012 will be limited to prohibit "spiking" a member's salary to increase the retirement benefit.

For all employees, the maximum annual amount of the retirement allowance is 80% of the member's final average salary. Any member who is a veteran also receives an additional yearly retirement allowance of \$15 per year of creditable service, not exceeding \$300. The veteran allowance is paid in addition to the 80% maximum.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2019 and 2018

Membership in the System consisted of the following at January 1, 2020, the date of the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	2,247
Terminated plan members entitled to, but not receiving benefits	498
Terminated plan members with a vested right to a deferred or immediate benefit	136
Active plan members	<u>3,040</u>
Total membership	<u>5,921</u>
Total number of participating employers	4

(2) Contributions Required and Contributions Made

Plan members are required to contribute to the System. Depending on their employment date, active members must contribute a range of 5% to 9% of their regular gross compensation. Members hired after December 31, 1978 must contribute an additional 2% of regular compensation in excess of \$30,000. Participating employers are required to pay into the System their share of the remaining system wide actuarially determined contribution, which is apportioned among the employers based on active covered payroll. The contributions of plan members and the participating employers are governed by Chapter 32 of the MGL.

The Commonwealth is obligated to reimburse the System for a portion of the benefits payments for cost of living increases granted before July 1998.

(3) Summary of Significant Accounting Policies

(a) Basis of Accounting

The System's financial statements are prepared using the full accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. Employer contributions to the plan are recognized when due and the employer is legally required to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

(b) Cash and Cash Equivalents

Cash and cash equivalents are considered to be cash on deposit, and highly liquid short-term investments with original maturities of three months or less from the date of acquisition.

(c) Investment and Valuation

The System participates in the segmentation program of the Pension Reserves Investment Trust (PRIT) Fund which allows Massachusetts retirement systems to invest only in individual asset classes of the PRIT Fund. The PRIT Fund is an external investment pool, as defined by the Government Accounting Standards Board, and it is not registered with the Securities and Exchange Commission, but is subject to oversight by the Pension Reserves Investment Management Board (the PRIM Board). The System's alternative investments include investments in the PRIT hedge and private equity segments of the PRIT Fund. The PRIT Fund issues separately available audited financial statements.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Notes to Financial Statements

December 31, 2019 and 2018

Investments are reported at fair value. Securities traded on a national or international securities exchange are valued at the last reported sales price on the last business day of the plan year; investments traded on a national securities exchange for which no sale was reported on that date and investments in common and preferred stocks traded in over-the-counter markets are valued at the mean of the last reported bid and asked prices, or the last reported bid price. Mutual funds and commingled funds, including real estate and other alternative (including private equity and hedge) investments, are valued based on net asset value (NAV) or unit value at year-end. Changes in fair value are included in investment income (loss) in the statement of changes in fiduciary net position.

(d) Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of additions and deductions during the reporting periods. Actual results could differ from estimates.

(e) Other

Purchases and sales of securities are reflected on a trade-date basis. Realized gain or loss on sales of securities is based on average cost.

Dividend income is recorded on the ex-dividend date. Interest income is recorded as earned on an accrual basis.

The System presents in its Statements of Changes in Fiduciary Net Position the net appreciation (depreciation) in the fair value of its investments, which consists of the net realized gains and losses during the year and the change in unrealized appreciation and depreciation during the year on those investments.

(f) Investment Policy

The provisions of Massachusetts General Laws (M.G.L.) Chapter 32, Section 23(2) and the Board approved investment policy govern the Plan's investment practice.

Diversification is attained through varied investment management styles that comply with Massachusetts state law. This is accomplished through the retention of investment managers that adhere to M.G.L. Chapter 32, Section 23(3), the "Prudent Person" rule.

The System has retained an investment consultant to work with the Board in a fiduciary capacity to assure that strategic investment diversification is attained, to employ investment managers with expertise in their respective asset classes, and to closely monitor the implementation and performance of the respective investment strategies.

The System is currently invested in equities (domestic and international), fixed income securities (domestic and international), real estate and other alternative (including private equity and hedge).

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The target allocation for each major asset class is summarized in the following table:

Asset class	2019 Target asset allocation	2018 Target asset allocation
Cash	— %	— %
Domestic equity	28.00	25.00
International developed markets equity	10.00	9.00
International emerging markets equity	10.00	10.00
Core fixed income	10.00	15.00
High yield fixed income	10.00	8.00
Real estate	11.00	10.00
Commodities	3.00	2.50
Hedge fund, GTAA, risk parity	5.00	9.00
Private equity	13.00	11.50
Total	100.00 %	100.00 %

The Board's current rebalancing policy states that "The Board shall rebalance to the established targets during the quarter following the quarter ended whenever the asset class allocation falls outside the allowable ranges."

(g) Commitments

At December 31, 2019 and 2018, the System had contractual commitments to provide approximately \$116 million and \$125.5 million, respectively, of additional funding for alternative investments and real estate.

(4) Deposit and Investment Risks

(a) Custodial Credit Risk

Custodial credit risk is the risk that, in the event of a failure of a depository financial institution, the System deposits may not be returned. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System and are held by either the depository financial institution or the depository financial institution's trust department or agent but not in the System's name. The System's cash and cash equivalent deposits that are not collateralized are subject to the Federal Deposit Insurance Corporation (FDIC) insurance limits. At December 31, 2019 and December 31, 2018, \$8,777,147 and \$9,313,071 of the System's cash and cash equivalent deposits, respectively, were uninsured and uncollateralized.

Although there is no System – wide policy for custodial credit risk associated with deposits, the System's investments are held by the System's custodian and registered in the System's name. All of the System's securities are held by the System's custodial bank in the System's name, except for investments in mutual and commingled funds, real estate properties, and limited partnerships, which by their nature, are not subject to custodial credit risk. Investments in the Short-Term Investment Funds

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(STIF) are held in an SEC-registered pooled fund that is managed by the master custodian bank. The fair value of the position in the pool equals the value of the pool shares.

(b) Credit Risk

Credit risk exists when there is a possibility the issuer or other counterparty to an investment may be unable to fulfill its obligations.

There are no System – wide policy limitations for credit risk exposures within the portfolio. The System's fixed income investments are managed in accordance with an investment contract that is specific as to permissible credit quality ranges and the average credit quality of the overall portfolio.

The System allows investment managers to apply discretion under the "Prudent Person" rule. Investments are made, as a prudent person would be expected to act with discretion and intelligence, to seek reasonable income, preserve capital and, in general, avoid speculative investments.

The System's fixed income investments as of December 31, 2019 and 2018, if rated, were rated by Standard and Poor's and/or an equivalent national rating organization. The ratings are presented below using the Standard and Poor's rating scale:

Investment type	Fair value	AAA	AA	A	BBB	BB	Less than BB	Not rated
System (as of December 31, 2019):								
U.S. Treasury notes and bonds and municipal securities	\$ 21,095,624	14,076,078	4,361,395	308,930	—	—	—	2,349,221
U.S. agencies	1,872,330	15,909	—	—	—	—	—	1,856,421
Domestic corporate	25,413,248	732,622	573,628	5,534,691	17,176,332	106,946	—	1,289,029
Asset-backed:								
CMOs	5,208,336	3,665,984	—	259,442	—	—	—	1,282,910
Other	5,234,626	3,885,527	—	1,349,099	—	—	—	—
Pooled fixed-income investments	193,582,687	—	—	—	—	—	—	193,582,687
Total	\$ 252,406,851	22,376,120	4,935,023	7,452,162	17,176,332	106,946	—	200,360,268

Investment type	Fair value	AAA	AA	A	BBB	BB	Less than BB	Not rated
System (as of December 31, 2018):								
U.S. Treasury notes and bonds and municipal securities	\$ 22,189,948	8,229,707	6,336,709	828,226	180,781	—	2,618,891	3,995,634
U.S. agencies	2,969,194	18,851	—	—	—	—	—	2,950,343
Domestic corporate	21,716,278	—	757,678	6,100,783	14,857,588	—	—	229
Asset-backed:								
CMOs	4,020,312	2,866,202	—	307,961	—	3,928	—	842,221
Other	7,488,335	4,348,502	211,630	1,515,303	257,156	224,659	177,348	753,737
Pooled fixed-income investments	196,842,812	—	—	—	—	—	—	196,842,812
Total	\$ 255,226,879	15,463,262	7,306,017	8,752,273	15,295,525	228,587	2,796,239	205,384,976

(c) Concentration of Credit Risk

Concentration of credit risk is the risk of loss that may be attributed to the magnitude of a government's investment in a single issuer. The System has no investments, at fair value, that exceed 5% of the

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System's total investments as of December 31, 2019 and 2018 other than pooled investments. The System adheres to the provisions of M.G.L. c. 32, sec 23(2) when managing concentration risk.

(d) Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. This risk is managed within the portfolio using the effective duration methodology. It is widely used in the management of fixed income portfolios in that it quantifies to a much greater degree the risk of interest rate changes.

The following is a listing of the System's fixed income investments and related maturity schedule (in years) as of December 31, 2019 and 2018:

Investment type	Fair value	Less than 1	1-5	6-10	More than 10
System (as of December 31, 2019):					
U.S. Treasury notes and bonds and municipal securities	\$ 21,095,624	301,393	8,636,832	1,302,363	10,855,036
U.S. agencies	1,872,330	—	84,729	250,881	1,536,720
Domestic corporate	25,413,248	277,443	11,050,731	6,124,094	7,960,980
Asset-backed:					
CMOs	5,208,336	—	—	—	5,208,336
Other	5,234,626	—	4,737,583	497,043	—
Pooled fixed-income investments	193,582,687	—	—	193,582,687	—
Total	\$ 252,406,851	578,836	24,509,875	201,757,068	25,561,072

Investment type	Fair value	Less than 1	1-5	6-10	More than 10
System (as of December 31, 2018):					
U.S. Treasury notes and bonds and municipal securities	\$ 22,189,948	180,781	11,727,818	1,018,228	9,263,121
U.S. agencies	2,969,194	—	171,457	338,416	2,459,321
Domestic corporate	21,716,278	966,016	9,787,369	6,591,965	4,370,928
Asset-backed:					
CMOs	4,020,312	—	—	—	4,020,312
Other	7,488,335	—	5,342,364	1,003,433	1,142,538
Pooled fixed-income investments	196,842,812	—	—	196,842,812	—
Total	\$ 255,226,879	1,146,797	27,029,008	205,794,854	21,256,220

(e) Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The System's asset allocation model which serves as a proxy for a foreign currency policy, limits the amount of foreign currency exposure to 20% of the System's total investments. Similar to the investments in domestic equities, the System employs or encourages its investment advisor to employ diversification, asset allocation, and quality strategies. Currency hedging

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is permitted for defensive purposes. Currency hedging shall be effected through the use of forward currency contracts. At December 31, 2019 and 2018, there were no open forward currency contracts.

Risk of loss arises from changes in currency exchange rates. The System's exposure to foreign currency risk is presented below at December 31, 2019 and 2018.

	<u>2019</u>	<u>2018</u>
Currency:		
International equity pooled funds (various currencies)	\$ 203,466,808	166,056,092
International fixed income pooled funds (various currencies)	<u>66,119,549</u>	<u>62,561,122</u>
	<u>\$ 269,586,357</u>	<u>228,617,214</u>

Although these investments are not denominated in a foreign currency, the underlying securities are denominated in various foreign currencies.

(f) Rates of Return

For the years ended December 31, 2019 and 2018, the annual money weighted rate of return on plan investments, net of plan investment expense was 16.12% and (3.56)%, respectively. The money weighted rate of return expresses investment performance net of investment expenses adjusted for the changing amounts actually invested.

(g) Securities Lending

The Public Employment Retirement Administration Commission of Massachusetts (PERAC) has issued supplemental regulations that permit the System to engage in securities lending transactions. The System has entered into a Securities Lending Authorization Agreement (the Agreement) with a third party to act as the System's sub-custodian/agent for the purposes of managing a securities lending program.

The System lends fixed income, domestic equity, and international equity securities to approved broker/dealers. Collateral for securities loaned equals 102 percent of fair market value for domestic securities and 105 percent for international securities not denominated in U.S. dollars.

Types of collateral received from borrowers for securities loaned are cash and non-cash. The sub-custodian is authorized to invest the cash collateral in Approved Investments, as defined in the Agreement. Non-cash collateral received is not recorded in the accompanying financial statements as the System cannot pledge or sell the non-cash collateral except in the event of a borrower default.

As of December 31, 2019, the fair value of securities on loan was \$10.5 million. The associated collateral was \$10.7 million, of which \$10.2 million was cash collateral and \$.5 million was non-cash. The cash collateral has been reinvested in repurchase agreements (\$.2 million), floating rate notes (\$9.6 million), commercial paper (\$.2 million), and certificate of deposit (\$.2 million) with a collective fair value of approximately \$10.2 million. The repurchase agreements are valued at amortized cost which approximates fair value. The floating rate notes are valued at fair value and are considered level 2 securities in the fair value hierarchy.

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As of December 31, 2018, the fair value of securities on loan was \$46.6 million. The associated collateral was \$47.7 million, of which \$35.3 million was cash collateral and \$12.4 million was non-cash. The cash collateral has been reinvested in repurchase agreements (\$8.2 million), time deposits (\$0.8 million) and floating rate notes (\$26.3 million) with a collective fair value of approximately \$35.3 million. The repurchase agreements and time deposits are valued at amortized cost which approximates fair value. The floating rate notes are valued at fair value and are considered level 2 securities in the fair value hierarchy.

The Agreement limits the maturity value of any Approved Investment, as defined, to a maximum of 397 days, except U.S. government securities, which shall have a final maturity not exceeding 762 days.

At year-end, the System has no credit risk exposure to borrowers because the amounts the System owes the borrowers exceed the amounts the borrowers owe the System. The Agreement indemnifies the System if the borrowers fail to return the securities (and the collateral is inadequate to replace the securities lent) or fail to pay the System for income distributions by the securities' issuers while the securities are on loan.

As of December 31, 2019 and 2018, there were no violations of legal or contractual provisions. The System has not experienced any losses resulting from the default of a borrower or lending agent during the years ended December 31, 2019 and 2018.

(h) Fair Value Hierarchy

GAAP establishes a fair value hierarchy for investments that prioritizes inputs used to measure fair value into three levels:

Level 1 – quoted prices (unadjusted) for identical assets or liabilities in active markets that are accessible at the measurement date;

Level 2 – observable inputs that are based on inputs not quoted in active markets, but corroborated by market data.

Level 3 – unobservable inputs that are used when little or no market data is available.

The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs. In determining fair value, the System utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible.

Investments held through commingled funds for which fair value is estimated using net asset values (NAVs) as a practical expedient are not categorized in the fair value hierarchy.

The System uses an independent pricing source to determine the fair value of investments at quoted market prices.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

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The System has the following fair value measurements as of December 31, 2020 and 2019:

2019			
	Fair value	Level 1	Level 2
Investments by fair value level:			
Fixed income	\$ 58,824,164	19,391,695	39,432,469
Equities	20,534,791	20,534,791	—
	<u>79,358,955</u>	<u>39,926,486</u>	<u>39,432,469</u>
Investments measured at NAV:			
Commingled equity funds:			
International	203,466,808	—	—
Domestic	550,472,826	—	—
Commingled fixed income funds:			
International	66,119,549	—	—
Domestic	127,463,138	—	—
Real estate	212,645,918	—	—
Alternative:			
PRIT hedge fund	90,191,864	—	—
PRIT private equity	74,825,002	—	—
Other alternative	36,893,499	—	—
	<u>1,362,078,604</u>	<u>—</u>	<u>—</u>
Total investments	\$ <u>1,441,437,559</u>	<u>39,926,486</u>	<u>39,432,469</u>
2018			
	Fair value	Level 1	Level 2
Investments by fair value level:			
Fixed income	\$ 58,384,067	20,570,220	37,813,847
Equities	120,230,775	120,230,775	—
	<u>178,614,842</u>	<u>140,800,995</u>	<u>37,813,847</u>

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				2018		
				Fair value	Level 1	Level 2
Investments measured at NAV:						
Commingled equity funds:						
International	\$	166,056,092		—	—	—
Domestic		329,735,952		—	—	—
Commingled fixed income funds:						
International		62,561,122		—	—	—
Domestic		134,281,690		—	—	—
Real estate		199,379,922		—	—	—
Alternative:						
PRIT hedge fund		102,637,320		—	—	—
PRIT private equity		50,006,361		—	—	—
Other alternative		36,755,560		—	—	—
				<u>1,081,414,019</u>	<u>—</u>	<u>—</u>
Total investments	\$	<u>1,260,028,861</u>		<u>140,800,995</u>	<u>37,813,847</u>	

The following represents the significant investment strategies and terms on which the System may redeem investments for those investments measured at the NAV (or its equivalent) as a practical expedient:

					Investments measured at NAV	
		2019	2018		Redemption frequency	Redemption notice period
Commingled equity funds	\$	753,939,634	495,792,044	Daily		1–30 days
Commingled fixed income funds		193,582,687	196,842,812	Daily		1–30 days
Real estate		212,645,918	199,379,922	Quarterly		1–30 days
Alternative		201,910,365	189,399,241	Quarterly		1–30 days

- 1 Commingled equity funds: This type includes 9 funds that invest primarily in U.S. large and small cap equity funds and international equity funds.
- 2 Commingled fixed income funds: This type includes 3 fixed income funds that invest in U.S. corporate bonds, U.S. government bonds, U.S. asset-backed securities and foreign bonds.
- 3 Real estate funds: This type includes 11 funds that invest primarily in real estate funds and global infrastructure.
- 4 Alternative funds: This type includes 16 funds that invest primarily in private equity and venture capital funds. The System is required to provide a 24 hour redemption notice for the PRIT hedge fund. The PRIT private equity fund is not redeemable until notified by the PRIM Board.

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(5) Operating Expenses

The System's administrative expenses as shown on the Statements of Changes in Fiduciary Net Position are borne by the System and financed with investment income. These expenses include personnel and professional services, member communication and education, and other miscellaneous administrative expenses.

(6) Legally Required Reserve Accounts

The balances in the System's legally required reserves at December 31, 2019 and 2018 are as follows:

	<u>2019</u>	<u>2018</u>	<u>Purpose</u>
Annuity savings fund	\$ 264,264,157	259,847,186	Active members' contribution balance
Annuity reserve fund	81,218,993	78,312,155	Retired members' contribution account
Pension reserve fund	1,090,854,107	912,511,680	Amounts appropriated to fund future retirement benefits
Pension fund	14,397,583	18,043,514	Remaining net assets
Military service fund	4,620	4,615	Amounts appropriated to fund military service time
	<u>\$ 1,450,739,460</u>	<u>1,268,719,150</u>	

All reserve accounts are funded at levels required by State statute.

(7) Net Pension Liability

The components of the net pension liability of the System as of December 31, 2019 and 2018, are as follows:

	<u>2019</u>	<u>2018</u>
Total pension liability	\$ 1,690,622,307	1,588,140,954
Fiduciary net position	<u>1,450,739,460</u>	<u>1,268,719,150</u>
System's net pension liability	<u>\$ 239,882,847</u>	<u>319,421,804</u>
Fiduciary net position as a percentage of the total pension liability	85.81 %	79.89 %

(a) Actuarial Assumptions

The total pension liability at December 31, 2019 was measured by an actuarial valuation as of January 1, 2020. Total pension liability at December 31, 2018 was determined by an actuarial valuation as of January 1, 2018. Update procedures were used to roll forward the total pension liability from the

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valuation dates to the measurement dates. The following actuarial assumptions were applied to the measurement of the total pension liability at December 31, 2019 and 2018:

	2019	2018
Inflation	3.0%	3.5%
Salary increases	4.0%	4.5%
Investment rate of return	7.25%	7.5%
Cost of living adjustments	3% of first \$16,000	3% of first \$16,000
Pre-retirement mortality	Group 1 and 2: Pub-2010 General Employee Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019 Group 4: Pub-2010 Safety Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2019	RP-2014 Blue Collar Employee Mortality Table set forward one year for females projected generationally with Scale MP-2017
Healthy Retiree mortality	Group 1 and 2: Pub-2010 General Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019 Group 4: Pub-2010 Safety Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2019	RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year for females projected generationally with Scale MP-2017
Disabled Retiree mortality	Group 1 and 2: Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019 Group 4: Pub-2010 Disabled Retiree Amount-Weighted Mortality Table projected generationally using Scale MP-2019	RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2017

- Long-term Expected Rate of Return:
 - The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for

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each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The best estimates of arithmetic long-term expected real rates of return for each major asset class are summarized in the following table:

Asset class	2019 Long-term expected real rate of return	2018 Long-term expected real rate of return
Cash	0.63 %	1.12 %
Domestic equity	6.15	6.16
International developed markets equity	6.78	6.69
International emerging markets equity	8.65	9.47
Core fixed income	1.11	1.89
High yield fixed income	3.51	4.00
Real estate	4.33	4.58
Commodities	4.13	4.77
Hedge fund, GTAA, risk parity	3.19	3.68
Private equity	9.99	10.00

(b) Discount Rate

The discount rates used to measure the total pension liability were 7.25% and 7.5% as of December 31, 2019 and 2018, respectively. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on the plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

(c) Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the System as of December 31, 2019 and 2018, calculated using the current discount rates, as well as what the net pension liability would be if it were calculated using a discount rate that is one-percentage point lower or one-percentage point higher than the current rate:

		2019	
	1% decrease (6.25%)	Current discount rate (7.25%)	1% increase (8.25%)
System's net pension liability	\$ 437,334,858	239,882,847	74,233,062

CITY OF CAMBRIDGE RETIREMENT SYSTEM

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		2018	
	1% decrease (6.50%)	Current discount rate (7.50%)	1% increase (8.50%)
System's net pension liability	\$ 500,023,541	319,421,804	167,545,669

(8) Subsequent Events

On March 11, 2020, an outbreak of the novel strain of coronavirus known as COVID-19 was declared a pandemic by the World Health Organization. Due to this, the financial markets have experienced and may continue to experience significant volatility. Management and the System's investment advisor will continue to monitor the market conditions as information is available to evaluate the potential impacts, if any, on the value of its various investments and operations.

The System has evaluated subsequent events from the Statement of Fiduciary Net Position date of December 31, 2019 through August 28, 2020, the date on which the basic financial statements were issued, and determined there are no other items to disclose.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Required Supplementary Information

Schedule of Changes in the Net Pension Liability and Related Ratios

(Unaudited)

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	\$ 35,818,206	35,289,253	31,903,330	32,844,244	30,908,861	29,791,673
Interest	118,524,777	113,321,515	107,835,410	105,325,306	98,925,146	94,315,895
Changes of benefit terms	—	—	13,786,855	—	—	—
Differences between expected and actual experience	(21,185,206)	5,492,484	—	(29,237,110)	—	—
Changes of assumptions	56,581,172	—	43,565,250	—	42,033,481	—
Benefit payments, including refunds of member contributions	(87,257,596)	(83,253,157)	(78,642,592)	(72,563,588)	(69,354,414)	(64,034,766)
Net change in total pension liability	102,481,353	70,850,095	118,448,253	36,368,852	102,513,074	60,072,802
Total pension liability – beginning	1,588,140,954	1,517,290,859	1,398,842,606	1,362,473,754	1,259,960,680	1,199,887,878
Total pension liability – ending (a)	1,690,622,307	1,588,140,954	1,517,290,859	1,398,842,606	1,362,473,754	1,259,960,680
Plan fiduciary net position:						
Contributions – employers and nonemployer	45,681,166	43,173,090	40,831,840	40,047,891	37,851,149	35,775,814
Contributions – member	23,809,697	22,730,249	22,146,929	20,949,712	21,167,434	20,572,796
Net investment income	201,086,610	(48,209,324)	190,247,348	90,299,489	(6,716,067)	64,639,098
Benefit payments, including refunds of member contributions, and other	(87,335,876)	(83,297,157)	(78,642,592)	(72,563,588)	(69,354,414)	(64,034,766)
Administrative expenses	(1,221,287)	(1,253,759)	(1,127,717)	(1,112,054)	(1,076,459)	(1,031,915)
Net change in plan fiduciary net position	182,020,310	(66,856,901)	173,455,808	77,621,450	(18,128,357)	55,921,027
Plan fiduciary net position – beginning	1,268,719,150	1,335,576,051	1,162,120,243	1,084,498,793	1,102,627,150	1,046,706,123
Plan fiduciary net position – ending (b)	1,450,739,460	1,268,719,150	1,335,576,051	1,162,120,243	1,084,498,793	1,102,627,150
Net pension liability – ending (a) – (b)	\$ 239,882,847	319,421,804	181,714,808	236,722,363	277,974,961	157,333,530
Fiduciary net position as a percentage of the total pension liability	85.8 %	79.9 %	88.0 %	83.1 %	80.0 %	87.5 %
Covered payroll	\$ 235,687,286	231,568,517	228,696,936	220,963,223	226,826,076	218,627,543
Plan net pension liability as a percentage of covered payroll	101.78 %	137.94 %	79.46 %	107.13 %	122.50 %	72.00 %

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Required Supplementary Information

Notes to Schedule of Changes in the Net Pension Liability and Related Ratios

(Unaudited)

Benefit Changes	Amount of change TPL	Description
2017:	\$ 13,786,855	- The COLA base was changed from \$14,000 to \$16,000 effective July 1, 2018.
Changes of Assumptions	Amount of change TPL	Description
2019:	\$ 56,581,172	<ul style="list-style-type: none"> - Discount rate decreased from 7.50% to 7.25% - Salary Increases decreased from 4.50% to 4.00% - Wage Inflation decreased from 3.50% to 3.00% - The mortality assumptions for Pre-Retirement Group 1 and 2 was updated from RP-2014 Blue Collar Employee Morality Table set forward one year for females projected generationally with Scale MP-2017 to Pub-2010 General Employee Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019 - The mortality assumptions for Pre-Retirement Group 4 was updated from RP-2014 Blue Collar Employee Morality Table set forward one year for females projected generationally with Scale MP-2017 to Pub-2010 Safety Employee Amount-Weighted Mortality Table projected generationally using Scale MP-2019 - The mortality assumptions for the Healthy Retirement Group 1 and 2 was updated from RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year for females projected generationally with Scale MP-2017 to Pub-2010 General Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019 - The mortality assumptions for the Healthy Retirement Group 4 was updated from RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year for females projected generationally with Scale MP-2017 to Pub-2010 Safety Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2019 - The mortality assumptions for Disabled participants in Group 1 and 2 was updated from RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2017 to Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table set forward one year projected generationally using Scale MP-2019 - The mortality assumptions for Disabled participants in Group 4 was updated from RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2017 to Pub-2010 Disabled Retiree Amount-Weighted Mortality Table projected generationally using Scale MP-2019 - The administrative expense assumption was increased from \$1,300,000 for calendar 2018 to \$1,500,000 for calendar 2019.
2017:	\$ 43,565,250	<ul style="list-style-type: none"> - Discount rate decreased from 7.75% to 7.50% - The mortality assumption for nondisabled participants was updated from RP-2000 Employee Healthy Annuitant Mortality Tables projected generationally from 2009 using Scale BB2D to the RP-2014 Blue Collar Employee and Healthy Annuitant Mortality Tables set forward one year for females projected generationally with Scale MP-2017. - The mortality assumptions for disabled participants was updated from the RP-2000 Healthy Annuitant Mortality Table projected generationally from 2015 using Scale BB2D to the RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2017. - The administrative expense assumption was increased from \$1,150,000 for calendar 2016 to \$1,300,000 for calendar 2018.
2015:	\$ 42,033,481	<ul style="list-style-type: none"> - Discount rate decreased from 7.875% to 7.75% - The mortality assumption for nondisabled participants was changed from the RP-2000 Combined Healthy Mortality Table projected 17 years using AA to the RP-2000 Employee and Healthy Annuitant Mortality Tables projected generationally from 2009 using Scale BB2D. - The mortality assumption for disabled participants was changed from the RP-2000 Combined Healthy Mortality Table set forward five year projected 17 using Scale AA to the RP-2000 Healthy Annuitant Mortality Table projected generationally from 2015 using Scale BB2D. - The salary increase assumption was decreased from 4.75% to 4.5%. - The administrative expense assumption was increased from \$1,100,000 for calendar 2014 to \$1,150,000 for calendar 2016. - The asset valuation method was reset from an actuarial value of assets to a market value of assets.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Required Supplementary Information

Schedule of Investment Returns

(Unaudited)

	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Annual money-weighted rate of return, net of investment expense	16.12 %	(3.56)%	16.49 %	8.40 %	(0.60)%	6.20 %

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Required Supplementary Information

Schedule of Contributions

(Unaudited)

	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>
Actuarially determined contribution	\$ 45,381,166	42,873,090	40,531,840	39,747,891	37,551,149	35,475,814	35,475,814	31,662,897	29,912,987	28,353,542
Contributions in relation to the actuarially determined contribution	<u>45,681,166</u>	<u>43,173,090</u>	<u>40,831,840</u>	<u>40,047,891</u>	<u>37,851,149</u>	<u>35,775,814</u>	<u>35,775,814</u>	<u>31,967,897</u>	<u>32,212,987</u>	<u>28,553,542</u>
Contribution deficiency (excess)	<u>\$ (300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(300,000)</u>	<u>(305,000)</u>	<u>(2,300,000)</u>	<u>(200,000)</u>
Covered payroll	\$ 235,687,286	231,568,517	228,696,936	220,963,223	226,826,076	218,627,543	217,086,299	217,086,299	232,842,117	232,842,117
Contributions as a percentage of covered payroll	19.38 %	18.64 %	17.85 %	18.12 %	16.69 %	16.36 %	16.34 %	14.59 %	12.85 %	12.18 %

See accompanying independent auditors' report.

CITY OF CAMBRIDGE RETIREMENT SYSTEM

Required Supplementary Information

Notes to Schedule of Contributions – Last 10 Years

(Unaudited)

Methods and assumptions used to determine contribution rates:

Valuation date:

Actuarially determined contribution rates for fiscal 2019 are determined with the January 1, 2018 actuarial valuation.

The following assumptions were used for the periods included in the funding for 2019:

Actuarial cost method:	Entry age normal
Amortization method:	Prior year's contributions increased 5.85% for two years and remain level thereafter, plus an additional contribution of \$300,000 each year
Asset valuation method:	Market value of assets as of December 31, 2107 as reported in the System's Annual Statement
Inflation:	3.50%
Salary increases:	4.50%
Investment rate of return:	7.50%, net of plan investment expense lowered from 7.75%
Retirement benefits:	Depending on age at retirement and "Group" classification 0.1%–2.5% per year of service times highest three year average salary. A five year average salary is used for those hired after April 1, 2012
Post-retirement cost of living increases:	The cost-of-living base is \$16,000. Annual cost of living increases are assumed to be 3.0% of the lesser of the base or annual benefits.
Mortality:	Pre-Retirement: RP-2014 Blue Collar Employee Mortality Table set forward 1 year for female participants projected generationally using Scale MP-2017 Healthy Retiree: RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward 1 year for female participants projected generationally using Scale MP-2017 Disabled Retiree: RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward 1 year projected generationally using Scale MP-2017
Changes of Assumptions:	Actuarial assumptions are revised periodically to more closely reflect actual, as well as anticipate future experience. When actuarial assumptions have changed in prior years, the Retirement Board formally adopted the change at a monthly meeting.

See accompanying independent auditors' report.